

ASSIGNMENT 1

Textbook Assignment: "Upper-Air Observations" and "Bathythermograph Observations," chapters 1 and 2, pages 1-1 through 2-12.

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| 1-1. Upper-air observations measure what two levels of the atmosphere?

1. The troposphere and stratosphere
2. The troposphere and mesosphere
3. The stratosphere and mesosphere
4. The mesosphere and thermosphere | 1-6. What is the ideal ascension rate, in feet per minute, for a meteorological balloon?

1. 395 to 1,640 fpm
2. 600 to 1,000 fpm
3. 900 to 1,000 fpm
4. 950 to 1,550 fpm |
| 1-2. What type of upper-air observation evaluates pressure, temperature, humidity, and wind direction and speed?

1. Radiosonde
2. Rawinsonde
3. Pibal
4. Rocketsonde | 1-7. Of the following gases, which one is recommended for inflating meteorological balloons?

1. Helium
2. Natural gas
3. Hydrogen
4. Oxygen |
| 1-3. What type of upper-air observation is used to measure lower-level winds only?

1. Radiosonde
2. Rawinsonde
3. Rabal
4. Pibal | 1-8. How much helium is required to achieve a 700-gram free-lift weight for a 100-gram balloon?

1. 25 cubic feet
2. 40 cubic feet
3. 50 cubic feet
4. 65 cubic feet |
| 1-4. Which of the following publications contains detailed information on conducting Rawinsonde and Pibal observations?

1. WMO Publication 306
2. NAVMETOCCOMINST 3140.1
3. FMH-1
4. FMH-3 | 1-9. Free lift must be increased during periods of precipitation or icing?
1. True
2. False |
| 1-5. What balloons are best suited for Rawinsonde observations during strong winds?

1. 100 gram
2. 300 gram
3. 600 gram
4. 1,200 gram | 1-10. Which of the following signals from the MRS unit indicates high quality reception from the radiosonde transmitter?

1. A steady tone
2. A steady green light
3. At least one asterisk displayed in the LCD window
4. At least five asterisks displayed in the LCD window |

- 1-11. Which of the following personnel grants permission for a radiosonde launch aboard ship?
1. Aft Lookout
 2. Master-At-Arms
 3. Officer of the Deck
 4. Executive Officer
- 1-12. When you use the MRS, abbreviations on the significant levels printout indicate the reason why the level was selected. Of the following abbreviations, which one indicates a maximum wind level?
1. T
 2. U
 3. TR
 4. MV
- 1-13. The "TEMP" function of the MRS produces what type of printout?
1. Coded message printout
 2. Raw data printout
 3. Pibal message printout
 4. Significant levels printout
- 1-14. Which of the following levels is NOT a mandatory significant level?
1. The surface level
 2. The tropopause
 3. The isopycnic level
 4. The base of a temperature inversion of 2.7°C at 420 hPa
- 1-15. When you use the MRS, how are Fixed Regional Level Winds (FRLW) determined?
1. They are automatically selected by the system
 2. They are read directly from the "winds" data printout
 3. They are manually selected and encoded
 4. Fixed Regional Level Winds are never reported when using the MRS
- 1-16. Which of the following activities should report significant level wind data in Part B of the TEMP code?
1. A National Weather Service station only
 2. All U.S. Navy ships, including those operating inside of WMO region IV
 3. A land station within the United States
 4. A mobile station within the United States
- 1-17. The additive data code group "10167" is used to report what type of information?
1. Wind vector information
 2. Tropopause information
 3. The type of equipment used to process the upper air sounding
 4. Levels of doubtful temperature data
- 1-18. Pilot balloon (PIBAL) observed winds are low-level wind measurements used primarily for tactical aircraft and para-drop operations.
1. True
 2. False
- 1-19. Which of the following software packages contains software for processing Pibal observations?
1. OAML
 2. GF MPL
 3. EOTDA
 4. AREPS
- 1-20. What size pilot balloon should be used for nighttime operations?
1. 10 gram
 2. 30 gram
 3. 50 gram
 4. 100 gram

1-21. When are black pilot balloons used for a Pibal observation?

1. Clear sky
2. Low-overcast sky
3. Hazy sky
4. High-overcast sky

1-22. Why are upper-air reports coded in a numerical form?

1. The information may be decoded internationally
2. A large amount of information can be transmitted by using only a few numbers
3. The code can be easily ingested into a computer
4. All of the above

1-23. When Part A of an upper-air report is transmitted from a mobile land site, what is the identifier group of the message?

1. IIAA
2. TTAA
3. UUAA
4. LLAA

1-24. If only one upper-air observation is conducted per day, for what synoptic hour is the observation conducted?

1. 0000Z only
2. 1200Z only
3. 0000Z or 1200Z, whichever is closer to local sunrise
4. 0600Z or 1800Z, whichever is closer to local sunrise

1-25. What parts of the TEMP code contain data for the standard atmospheric pressure surfaces?

1. Parts A and B
2. Parts A and C
3. Parts B and D
4. Parts C and D

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UUAA NSHP 65121 99601 10249 25004 99996 11221 30502 00531 ///// ///// 92606 06017 27513
85303 01422 27515 70837 08908 25509 50536 26556 19009 40693 40157 16006 30883 51562 26020
25002 46381 28044 20151 4458628052 15343 45785 27562 10612 47185 27051 88334 50756 23019
77147 27567 40306;

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Figure 1-A

- 1-26. In the TEMP code, if the YYGGI_d group is encoded 62003 in Part A, what does the "62" and the "3" indicate?
1. All temperatures are in Celsius and the observation contains doubtful data
 2. All temperatures are in Fahrenheit and the observation contains doubtful data
 3. 12th day of the month, the winds are in meters per second and are reported to 300 hPa
 4. 12th day of the month, the winds are in knots and are reported to 300 hPa
- 1-27. What is the reported surface pressure?
1. 1060 hPa
 2. 999 hPa
 3. 996 hPa
 4. 601 hPa
- 1-28. What altitude is reported for the 925-hPa pressure level?
1. 006 meters
 2. 260 meters
 3. 606 meters
 4. 926 meters
- 1-29. What is the temperature at the 500-hPa pressure level?
1. 26.5°F
 2. 26.5°C
 3. -26.5°F
 4. -26.5°C
- 1-30. What is the dew-point depression at the 500-hPa level?
1. 5.6°C
 2. 6.0°C
 3. 16.0°C
 4. 56.0°C
- 1-31. What is the wind direction and speed reported at the 150-hPa pressure level?
1. 270° at 62 mps
 2. 270° at 162 kt
 3. 275° at 62 kt
 4. 275° at 162 mps

IN ANSWERING QUESTIONS 1-27 THROUGH 1-33, REFER TO FIGURE 1-A ABOVE AND TABLE 1-8 IN YOUR TRAMAN.

UUBB NSHP 75120 99302 51753 42505 00013 10636 11873 01558 22776 05750 33762 03368 44746
 02767 55650 08567 66598 12758 77576 13962 88440 29163 99366 38160 11300 46357 22241 52147
 33200 50330 21212 00013 30502 11900 30505 22915 28020 33820 27515 44700 25509 55630 22509
 66520 19509 77450 18005 88380 16006 99350 19010 11320 22010 22300 26010 33270 27020 44180
 28030 55155 27532 66100 27030 31313 46105 81135 90123 41414 43521;

Figure 1-B

1-32. What is the reported height or pressure level of the tropopause?

1. 334 hPa
2. 147 hPa
3. 3,340 meters
4. 27,567 meters

1-33. What is the direction and speed of the maximum wind?

1. 210°/115 kt
2. 210°/115 mps
3. 275°/67 kt
4. 275°/67 mps

IN ANSWERING QUESTIONS 1-34 THROUGH 1-37, REFER TO FIGURE 1-B ABOVE AND TABLE 1-9 IN YOUR TRAMAN.

1-34. What is the reported surface pressure?

1. 901.3 hPa
2. 913.0 hPa
3. 1001.3 hPa
4. 1013.0 hPa

1-35. What is the dew-point depression at the 440-hPa level?

1. 6.0°F
2. 6.3°C
3. 13.0°C
4. 21.0°F

1-36. What is the wind direction and speed at the 820-hPa level?

1. 275° at 15 kt
2. 275° at 15 mps
3. 015° at 58 kt
4. 015° at 58 mps

1-37. What is the sea-surface temperature?

1. +10.5°C
2. +12.3°C
3. +13.5°C
4. -2.3°C

1-38. What information is included in message Part C of the TEMP code?

1. Mandatory levels at or below 100 hPa
2. Mandatory levels above 100 hPa
3. Significant levels at or below 100 hPa
4. Significant levels above 100 hPa

1-39. Which of the following data may be included as part of an Early Transmission Report?

1. Maximum altitude of balloon
2. Level of Free Convection
3. Convective Condensation Level
4. Stability Index

PPBB 64121 72306 90012 10013 09523 10020 90346 11510 12005 12505 90789 14005 15508 16510
 91246 17015 18019 18523 9205/ 20025 21530 9305/ 21050 21555 9405/ 21557 22060 950// 23065;
 PPDD 64121 72306 955// 23070;

Figure 1-C

1-40. In the PILOT code, which of the code groups should be used to report “maximum wind within the sounding, using standard altitudes”?

1. 66P_mP_mP_m
2. 6H_mH_mH_mH_m
3. 77H_mH_mH_mH_m
4. 77999

IN ANSWERING QUESTIONS 1-41 AND 1-42, REFER TO FIGURE 1-C.

1-41. What is the reported wind direction and speed at the 3,000-foot level?

1. 115° at 10 kt
2. 120° at 05 kt
3. 125° at 05 kt
4. 210° at 50 kt

1-42. What is the highest wind level reported in the observation?

1. 50,000 feet
2. 55,000 feet
3. 50,000 meters
4. 55,000 meters

1-43. What is the easiest method of transferring upper-air data to FNMOD, Asheville, for archiving?

1. Paper copy
2. AUTODIN message
3. Facsimile
4. Data diskette

1-44. What rate of change in temperature is characteristic of (a) near-surface ocean water, and (b) deep-ocean water?

1. (a) rapid (b) rapid
2. (a) rapid (b) slow
3. (a) slow (b) rapid
4. (a) slow (b) slow

1-45. How often are routine bathythermograph observations conducted from USW capable ships?

1. Once a day
2. Twice a day
3. Three times a day
4. Four times a day

1-46. What is the maximum depth of the standard XBT (T-4) probe?

1. 1,500 ft
2. 2,500 ft
3. 3,500 ft
4. 6,000 ft

1-47. When you place a new chart on the RO-326/SSQ-56 recorder, you should check the ready-for-launch mode calibration temperature and the alignment of the stylus on the surface depth line.

1. True
2. False

1-48. What is the purpose of the auxiliary signal output cable on the AN/BQH-7?

1. Connection to the hand-held LM3A launcher
2. Connection to the XSV-01 probe
3. Link-up to GPS
4. Link-up to NTDS

1-49. When the AN/BQH-7 system uses a T-4 probe and a sound velocity trace is recorded, sound velocity calculations are based on measured water temperature and what other value?

1. Actual measured salinity values
2. A standard salinity of 0‰
3. A standard salinity of 35‰
4. A standard salinity of 37‰

1-50. When should XSV-01 probes be used with the AN/BQH-7 system?

1. During training evolutions only
2. During actual warfare operations only
3. Whenever operating in a region where the water salinity does not average 35‰, or varies with depth
4. At all times; the XSV-01 is designed for use with the BQH-7

1-51. If the stylus on the RO-326/SSQ-56 recorder chart makes erratic excursions to the right of the chart paper, what is the probable cause?

1. Complete wire breakdown of probe
2. Leak from probe wire to salt water
3. Electromagnetic interference
4. Blown fuse on recorder

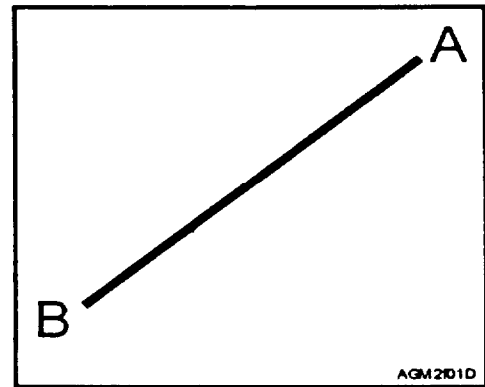


Figure 1-D

IN ANSWERING QUESTION 1-52, REFER TO FIGURE 1-D.

1-52. What is the type of gradient between points A and B?

1. Negative
2. Positive
3. Isothermal
4. Isovelocity